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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/736,678	12/13/2000	Siva Subramanian	7000-047	7990

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WITHROW & TERRANOVA, P.L.L.C.
P.O. BOX 1287
CARY, NC 27512

EXAMINER	
GOLD, AVI M	

ART UNIT	PAPER NUMBER
2157	

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/736,678	SUBRAMANIAN ET AL.	
	Examiner	Art Unit	
	Avi Gold	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This action is responsive to the amendment filed on April 25, 2005. Claims 1, 9, 11, 13, 16, 19, 27, 29, 30, 31, 37-39, and 43-46 were amended. Claims 1-50 are pending.

Response to Amendment

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-47 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Denecheau et al., U.S. Patent No. 6,611,874, in view of McCanne, U.S. Patent No. 6,611,872, further in view of Kilkki et al., U.S. Patent No. 6,868,061.

Denecheau teaches the invention substantially as claimed including a method for statistically improving routing within an Internet, and more particularly for improving next hop selection between internetwork routers (see abstract).

As to claims 1, 19, 31, and 46, Denecheau teaches a method and system for distributing processing among routing nodes capable of providing application level support during routing, the method comprising:

identifying processing resources required to provide application level support during routing for select traffic (col. 3, lines 43-58; Denecheau discloses next hop selection identifiers);

selecting at least one routing node capable of providing the processing resources required to provide the application level support for the select traffic (col. 6, lines 66-67; col. 7, lines 1-20; Denecheau discloses a protocol processing the packet); and

routing the select traffic through the at least one routing node capable of providing the processing resources required to provide the application level support, wherein the at least one routing node provides the application level support for the select traffic while routing the select traffic (col. 6, lines 66-67; col. 7, lines 1-20; Denecheau discloses a routing method that enables optimization of traffic).

Denecheau fails to teach the limitation further including application layer support and the use of routing nodes including a control, plane, a compute plane, and a forward plane.

However, McCanne teaches performing multicast communication in computer networks by using overlay routing (see abstract). McCanne teaches the use of routing on an application level (col. 3, line 58- col. 4, line 8).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Denecheau in view of McCanne to use routing on an application level. One would be motivated to do so because it makes use of sophisticated application-level knowledge.

Denecheau and McCanne fail to teach the limitation further including the use of routing nodes including a control plane, a compute plane, and a forward plane.

However, Kilkki teaches a method and apparatus for reducing network node congestion by filtering out comparatively low priority packets prior to execution of other node functions such as routing and switching. Kilkki teaches the filtering of packets which are then forwarded and processed by different functions (col. 4, lines 27-39); which is the same purpose of the three planes.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Denecheau and McCanne in view of Kilkki to include a control plane, a compute plane, and a forward plane as part of a routing node. One would be motivated to do so because it reduces the volume of packets that require processing (col. 4, lines 27-30).

Regarding claims 2, 20, and 32, Denecheau teaches the method of claim 1 wherein the at least one routing node is at least one of a plurality of routing nodes that can provide the application level support for the select traffic and the selecting step further comprises determining the at least one routing node from the plurality of routing nodes to provide the application level support in a manner to balance processing load among the plurality of routing nodes (col. 6, lines 66-67; col. 7, lines 1-20; Denecheau discloses balancing traffic over different routes).

Regarding claims 3, 21, and 33, Denecheau teaches the method of claim 1 wherein the at least one routing node is at least one of a plurality of routing nodes that can provide the application level support for the select traffic and the selecting step further comprises determining the at least one routing node from the plurality of routing nodes based on available processing capacity of the at least one routing node to provide the application level support (col. 6, lines 50-67; Denecheau discloses avoiding overrunning the capacity of the receiving station).

Regarding claims 4, 22, and 34, Denecheau teaches the method of claim 1 wherein the at least one routing node is at least one of a plurality of routing nodes that can provide the application level support for the select traffic and the selecting step further comprises determining the at least one routing node from the plurality of routing nodes based on available processing capacity of the plurality of routing nodes and the at least one routing node to provide the application level support (col. 6, lines 50-67).

Regarding claims 5, 23, and 35, Denecheau teaches the method of claim 1 wherein the selecting step selects a plurality of routing nodes through which to route the select traffic to distribute the application level support for the select traffic and the routing step routes the select traffic to facilitate distribution of the application level support such that processing for the application level support is distributed among the plurality of routing nodes while routing the select traffic (col. 6, lines 66-67; col. 7, lines 1-20, 59-65; Denecheau discloses processing done at the routing nodes).

Regarding claims 6, 24, and 36, Denecheau teaches the method of claim 5 wherein the selecting step further comprises selecting the plurality of routing nodes within one routing path such that all of the select traffic is routed through each of the plurality of routing nodes and processing for the application level support is distributed among the plurality of routing nodes while routing the select traffic (col. 6, lines 66-67; col. 7, lines 1-20, 59-65).

Regarding claims 7, 25, and 37, Denecheau teaches the method of claim 5 wherein the selecting step further comprises selecting the plurality of routing nodes within different routing paths such that a different portion of the select traffic is routed through each of the plurality of routing nodes and processing for the application level support is distributed among the plurality of routing nodes while routing the select traffic (col. 5, lines 22-51; col. 6, lines 66-67; col. 7, lines 1-20, 59-65; Denecheau discloses packets following a different path).

Regarding claims 8, 26, and 38, Denecheau teaches the method of claim 7 wherein the selecting step further comprises selecting the plurality of routing nodes wherein at least two of the plurality of routing nodes are within one of the different routing paths such that processing for the application level support for the portion of the select traffic routed through the at least two of the plurality of routing nodes is distributed

between the at least two of the plurality of routing nodes (col. 5, lines 22-51; col. 6, lines 66-67; col. 7, lines 1-20, 59-65).

Regarding claims 9, 27, and 39, Denecheau teaches the method of claim 1 wherein the selecting step further comprises:

identifying possible routing paths between a source and a destination for the select traffic, each of the possible routing paths including the at least one routing node capable of providing the processing resources required to provide the application level support for the select traffic (col. 3, lines 43-58);

identifying a capacity of the at least one routing node in the possible routing paths to provide the processing resources (col. 6, lines 50-67); and

determining at least one of the possible routing paths through which to route the select traffic based on the capacity of the at least one routing node in the possible routing paths to provide the processing resources (col. 6, lines 50-67).

Regarding claims 10, 28, and 40, Denecheau teaches the method of claim 9 further comprising allocating resources of the at least one routing node along the at least one of the possible routing paths to provide the processing for the application level support while routing (col. 6, lines 66-67; col. 7, lines 1-20, 59-65).

Regarding claims 11, 29, and 41, Denecheau teaches the method of claim 1 where the selecting step further comprises:

identifying possible routing paths between a source and a destination for the select traffic, each of the possible routing paths including at least one routing node capable of providing the processing resources required to provide the application level support for the select traffic (col. 3, lines 43-58);

identifying capacities of a plurality of routing nodes among the possible routing paths to provide the processing resources (col. 6, lines 50-67); and

determining at least one of the possible routing paths through which to route the select traffic based on the capacity of the plurality of routing nodes in the possible routing paths to provide the processing resources (col. 6, lines 50-67).

Regarding claims 12, 30, and 42, Denecheau teaches the method of claim 11 wherein the selecting step further comprises distributing processing among the plurality of routing nodes to provide the application level support for the select traffic (col. 6, lines 66-67; col. 7, lines 1-20, 59-65).

Regarding claims 13, 16, and 43, Denecheau teaches a method for distributing processing among multiple routing devices capable of providing application level support, the method comprising:

determining processing resources necessary for the application level support of traffic to be routed (col. 3, lines 43-58);

monitoring processing capacity available on a plurality of routing nodes capable of providing the application level support and routing the traffic (col. 6, lines 50-67);

identifying at least two of the plurality of routing nodes having combined processing capacity to provide the application level support necessary for the traffic to be routed (col. 5, lines 22-51; col. 6, lines 50-67; col. 7, lines 1-20, 59-65); and

routing the traffic in a manner allowing the at least two routing nodes to provide the processing for the application level support (col. 5, lines 22-51; col. 6, lines 50-67; col. 7, lines 1-20, 59-65).

Denecheau fails to teach the limitation further including application layer support and the use of routing nodes including a control, plane, a compute plane, and a forward plane.

However, McCanne teaches performing multicast communication in computer networks by using overlay routing (see abstract). McCanne teaches the use of routing on an application level (col. 3, line 58- col. 4, line 8).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Denecheau in view of McCanne to use routing on an application level. One would be motivated to do so because it makes use of sophisticated application-level knowledge.

Denecheau and McCanne fail to teach the limitation further including the use of routing nodes including a control plane, a compute plane, and a forward plane.

However, Kilkki teaches a method and apparatus for reducing network node congestion by filtering out comparatively low priority packets prior to execution of other node functions such as routing and switching. Kilkki teaches the filtering of packets

which are then forwarded and processed by different functions (col. 4, lines 27-39); which is the same purpose of the three planes.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Denecheau and McCanne in view of Kilkki to include a control plane, a compute plane, and a forward plane as part of a routing node. One would be motivated to do so because it reduces the volume of packets that require processing (col. 4, lines 27-30).

Regarding claims 14, 17, and 44, Denecheau teaches the method of claim 13 further comprising determining how to distribute the processing for the application level support among the at least two routing nodes based on the processing resources necessary for application level support (col. 5, lines 22-51; col. 6, lines 50-67; col. 7, lines 1-20, 59-65).

Regarding claims 15, 18, and 45, Denecheau teaches the method of claim 13 further comprising determining how to distribute the processing for the application level support among the at least two routing nodes based on the processing resources necessary for application level support (col. 5, lines 22-51; col. 6, lines 50-67; col. 7, lines 1-20, 59-65).

Regarding claim 47, Denecheau teaches the method of claim 1 wherein the at least one routing node provides the application level support for the select traffic while

routing the select traffic by manipulating a payload of a packet within the select traffic (col.5, lines 52-59, Denecheau discloses a message broken into packets, with those packets possibly being segmented, and transferred over the network).

Regarding claim 50, Denecheau teaches the method of claim 1 wherein the at least one routing node provides the application level support for the select traffic while routing the select traffic by operating on layer four and higher protocols within packets within the select traffic (col. 3, line 58- col. 4, line 8, McCanne discloses application level routing).

3. Claims 48 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Denecheau, McCanne, and Kilkki further in view of Chiu et al., U.S. Patent No. 6,701,363.

Denecheau teaches the invention substantially as claimed including a method for statistically improving routing within an Internet, and more particularly for improving next hop selection between internetwork routers (see abstract). McCanne teaches the invention substantially as claimed including performing multicast communication in computer networks by using overlay routing (see abstract). Kilkki teaches the invention substantially as claimed including a method and apparatus for reducing network node congestion by filtering out comparatively low priority packets prior to execution of other node functions such as routing and switching.

As to claims 48 and 49, Denecheau, McCanne, and Kilkki teach the method of claim 1.

Denecheau, McCanne, and Kilkki fail to teach the limitation further including routing the select traffic by providing secure socket layer applications and Internet Protocol security applications.

However, Chiu teaches measuring and analyzing performance characteristics for accessing hyper-link documents, such as web pages, over a communications network (see abstract). Chiu teaches the use of SSL and security protocols for routing (col. 8, lines 40-57).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Denecheau, McCanne, and Kilkki in view of Chiu to route the select traffic by providing secure socket layer applications and Internet Protocol security applications. One would be motivated to do so because it would allow for more ways to route the traffic which would provide more efficient routing overall.

Response to Arguments

4. Applicant's arguments with respect to claim 1-50 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat. No. 5,167,033 to Bryant et al.

U.S. Pat. No. 6,424,621 to Ramaswamy et al.

U.S. Pat. No. 6,286,052 to McCloghrie et al.

U.S. Pat. No. 6,078,953 to Vaid et al.

U.S. Pat. No. 6,044,075 to LeBoudec et al.

U.S. Pat. No. 5,495,426 to Waclawsky et al.

U.S. Pat. No. 5,854,899 to Callon et al.

U.S. Pat. No. 6,289,389 to Kikinis.

U.S. Pat. No. 6,151,633 to Hurst et al.

U.S. Pat. No. 5,377,327 to Jain et al.

U.S. Pat. No. 6,226,267 to Spinney et al.

U.S. Pat. No. 6,570,867 to Robinson et al.

U.S. Pat. No. 6,792,461 to Hericourt

U.S. Pat. No. 5,845,091 to Dunne et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Avi Gold whose telephone number is 571-272-4002. The examiner can normally be reached on M-F 8:00-5:30 (1st Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Avi Gold

Patent Examiner

Art Unit 2157

AMG

ARIO ETIENNE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100